

ABSTRACT

[0047] The invention is directed to a device by which two plastic parts can be welded together along their contacting joining surfaces (workpiece) quasi-simultaneously by laser radiation along a joining contour. The beam bundle emitted by a laser diode is coupled into a first gradient index lens by a light-conducting fiber. The first gradient index lens concentrates the beam bundle on a workpiece surface, this first gradient index lens being deflected relative to the exit surface of the light-conducting fiber so that the beam bundle scans a joining contour on the workpiece surface in order to heat, plasticize and weld the workpiece quasi-simultaneously. A plurality of such devices may be put together to form a more complex device in order to apply radiation to larger joining contours simultaneously and quasi-simultaneously.